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Installing Cisco uBR10-MC5X20S/U/H Cable Interface Line Cards

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Warning **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.**

Caution Use an ESD-preventive wrist or ankle strap during the line card installation.

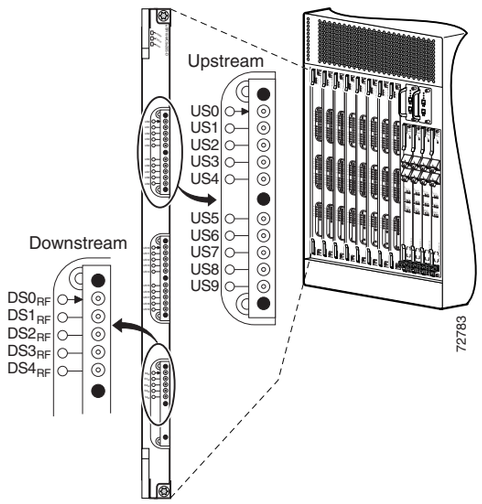
1 Feature Description

The Cisco uBR10-MC5X20S, U, and H cable interface line cards transmit and receive RF signals between the subscriber and the headend. Frequency ranges:

- Cisco uBR10-MC5X20S—5–42 MHz
- Cisco uBR10-MC5X20U—5–65 MHz
- Cisco uBR10-MC5X20H—5–65 MHz

The Cisco uBR10-MC5X20S/U/H cards have five downstream (DS) ports and twenty upstream (US) ports. The US ports are either fixed to a specific DS port or dynamically assigned to one or more DS ports, depending on the Cisco IOS software release.

Figure 1 Cisco uBR10-MC5X20S/U/H



2 Installing the Card

If you are replacing a Cisco uBR10-MC5X20S or U card with a Cisco uBR10-MC5X20U or H card, you must reconfigure the card.

Step 1 Make sure that you are grounded using an ESD-preventive wrist or ankle strap.

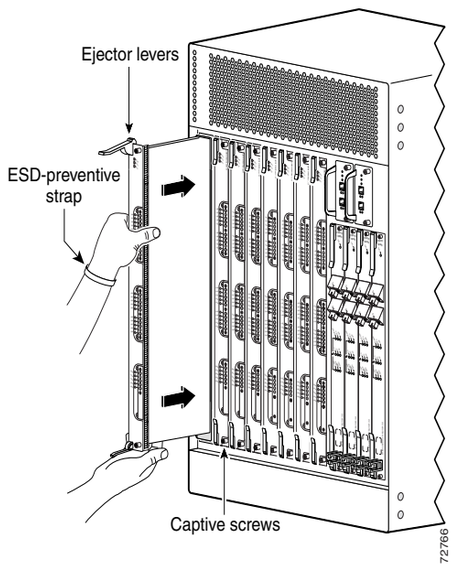
Step 2 Remove the protective sticker covering the DS ports.

Step 3 Verify that the ejector levers are open.

Step 4 Grasp the faceplate with one hand and place your other hand under the card.

Step 5 Align the upper and lower edges of the card with the upper and lower guides in the chassis.

Figure 2 Installing the Card



Step 6 Slide the card into the slot until you can feel it seat in the backplane connectors.

Step 7 Close both ejector levers to secure the card in the chassis. Engage and begin tightening the captive screws first by hand. Then, use either a T-10 Torx (included in the line card accessory kit) or a common flathead screwdriver to tighten the captive screws between 5 to 7 in-lbs.

Caution Only tighten the captive screws to a maximum of 7 in-lbs.

Tip Make sure that the captive screws are secure for proper electromagnetic interference (EMI) shielding.

Cabling the Card

Depending on your universal cable holder (UCH), refer to *Cabling the Cisco uBR10-MC5X20S/U/H Interface Line Card with UCH1 Quick Start Guide* or *Cabling the Cisco uBR10-MC5X20S/U/H Interface Line Card with UCH2 Quick Start Guide*.

3 Removing the Card

Shut down the card interface before removing the card from the chassis. Refer to "Shutting Down and Restarting the Interface" in the *Cisco uBR10012 Software Configuration Guide*.

If the maintenance LED is on, you can remove the card without affecting system operations.

Removing the UCH

For more information about the universal cable holders UCH1 and UCH2, refer to *Cabling the Cisco uBR10-MC5X20S/U/H Interface Line Card with UCH1* and *Cabling the Cisco uBR10-MC5X20S/U/H Interface Line Card with UCH2*.

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78-14712-06

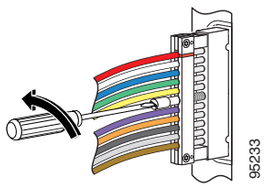
Step 1 Make sure that you are grounded using an ESD-preventive wrist or ankle strap.

Step 2 Loosen the leadscrew (counterclockwise) on the UCH until it is completely disengaged from the faceplate.

Step 3 Pull the UCH straight away from the faceplate using the leadscrew.

Caution Do not use the cables to pull the UCH from the faceplate.

Figure 3 Loosening the Leadscrew



Removing the Card

Step 1 Using a T-10 TORX driver tool or flathead screwdriver, unscrew the top and bottom captive screws on the card.

Step 2 Simultaneously pivot both ejector levers away from each other to disengage the card from the backplane.

Caution The upconverter on the back side of the card may be hot.

Step 3 Slide the card out of the slot and place it on an antistatic surface with the component side facing up.

Tip Always install a blank cover in an empty slot to ensure proper cooling and airflow.

4 Troubleshooting

Check the following:

1. Verify that the LEDs light and go through the power on self test (POST) when the card is inserted in the chassis.
2. Verify that the captive screws and ejector levers are secure.
3. Verify that the POWER LED is on (green). If the LED off (not green):
   a. Verify that there is power to the system.
   b. Verify that the card is configured for the system.

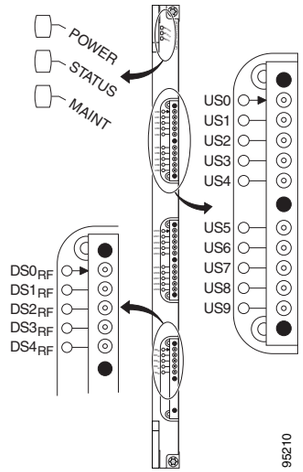
Table 1 LED Descriptions

LEDs	Description
POWER	
Green	Power on
Off	Power off
STATUS	
Green	Booted, passed diagnostics
Blinking green	Protect mode if redundant card
Yellow	In bootup mode
MAINT	
Off	No action required
Yellow	Okay to remove the card
US0–US19	
Green	Configured, able to pass traffic
Off	Not enabled
DS0–DS4	
Green	Configured, able to pass traffic
Off	Not enabled

4. If the card is cabled, check to see that the cables are securely attached and in the correct location.
5. Contact Cisco TAC for further information and help at the following URL:

   http://www.cisco.com/tac

Figure 4 Cisco uBR-MC5X20S/U/H LEDs



5 Technical Specifications

Table 2 Part Numbers

Description	Part Num/Specification
Cisco uBR-MC5X20S	UBR10-MC5X20S=
Cisco uBR-MC5X20U	UBR10-MC5X20U=
Cisco uBR-MC5X20H	UBR10-MC5X20H=
Blank card slot covers	UBR10-MC-COVER=
Dual-Shielded Cable kit	CAB-RFSW520TPMF=
Quad-Shielded Cable kit	CAB-RFSW520QTPMF=
Universal cable holder:	
UCH1	Johnson Components: 133-8447-026
UCH2	Cisco Systems: CAB-520-UCH2

Table 3 Specifications

Ports	Specification
Cisco uBR10-MC5X20S frequency range	
Upstream	5–42 MHz
Downstream	70–860 MHz

Table 3 Specifications (continued)

Ports	Specification
Cisco uBR10-MC5X20U frequency range	
Upstream	5–65 MHz
Downstream	70–860 MHz
Cisco uBR10-MC5X20H frequency range	
Upstream	5–65 MHz
Downstream	70–860 MHz
Modulation	
Upstream (US0–US19)	QPSK 8–, 16–, 32–, 64–QAM
Downstream (DS0–DS4)	64–QAM, 256–QAM
RF output power range—50 to 61 dBmV	
Power consumption	
MC5X20S MC5X20U MC5X20H	185W (631.2 BTU/hr) 175W (597.1 BTU/hr) 185W (631.2 BTU/hr)
Weight	16 lbs (7.26 kg)

Standards

Cisco uBR10-MC5X20S—ITU J.112, ITU J.83, Annex B

Cisco uBR10-MC5X20U/H—TU J.112, ITU J.83, Annex A, Annex B. This card is compatible with most cable systems worldwide, including but not limited to Asia, Europe, and the Americas.

6 Related Documentation

For safety information, refer to:

Regulatory Compliance and Safety Information for the Cisco uBR10012 Universal Broadband Router

For information about the 1-year warranty, go to:

http://www.cisco.com/en/US/docs/general/warranty/English/1Y1DEN__.html

For additional hardware installation and software configuration information, go to:

http://www.cisco.com/en/US/products/hw/cable/ps2209/tsd_products_support_series_home.html